Use Attainability Analysis

for

WBID 0924 South Fork Blackwater River

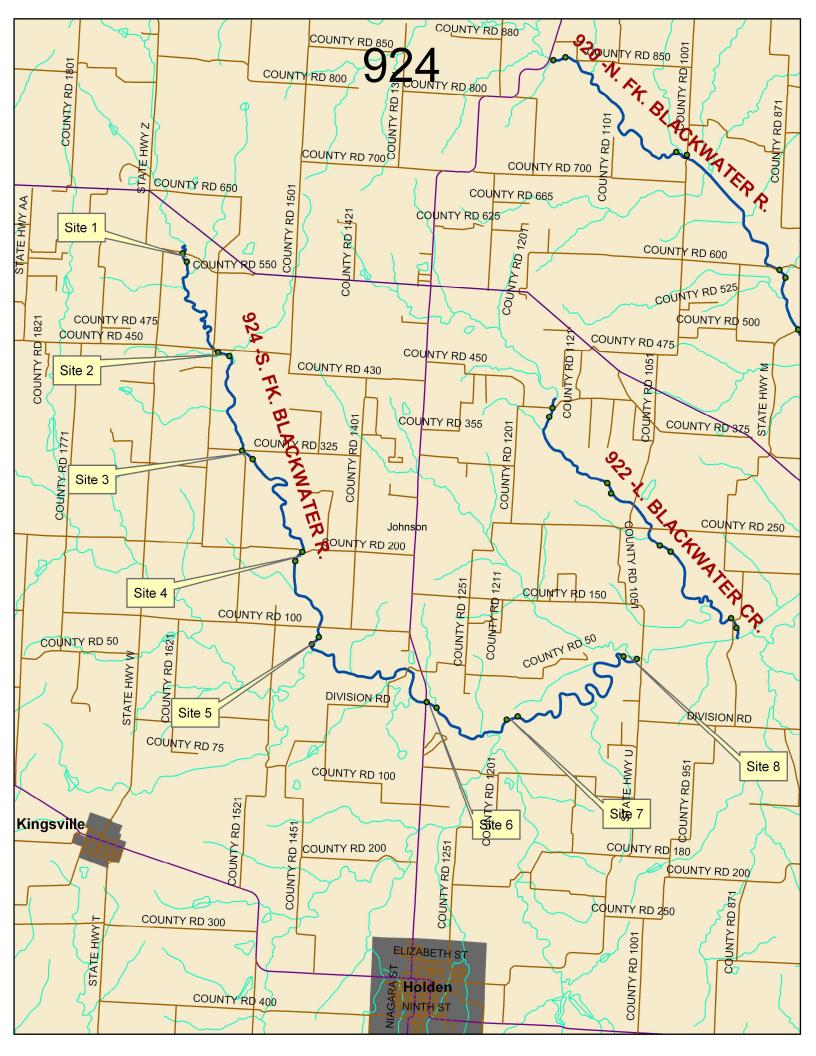
Submitted by SES, Inc.

to Missouri Department of Natural Resources Water Protection Program

Date received: November 14, 2007

Data Sheet A - Water Body Identification

I. Water B	ody Inforn	nation	(For water be	ody bein	g surveyed	1)	
Water Bod	ly Name (fr	om USGS 7.5	5' quad):	South F	ork Blackv	vater River	
Missouri W	/ater Body	Identification	(WBID) Num	nber:	924		
8 digit HU0	C code:	10290108			County:	Johnson	
Upstream	Legal Desc	cription (from	Table H):		T47N	R28W	Sec 30
Downstrea	ım Legal D	escription (fro	om Table H):		T46N	R27W	Sec 19
Number of	sites evalu	uated:	8				
List all site	numbers,	listed conseq	uently upstre	eam to do	wnstream	:	
	1, 2, 3, 4,	5, 6, 7, 8					
Mark any o	other items	s): Attach a r that may be o	of interest.				sites clearly labeled.
		Permit Numb		<u> </u>			
	Powell Ga MO01235	ordens WWTF 01	=				
III. UAA Sı	urveyor (pl	ease print leg	gibly)				
Name of S	urveyor:	Gilisa Gould	t		Telephon	e Number:	913.307.0054
Organization	on/Employ	er: S	SES, Inc.				
Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.							
Signed:	gilisa gou	ıld			_Date:	11.05.07	



Data Sheet B-Site Characterization

Date & Time:	10.26.0	7 14:50		Site Location Description (e.g. road crossing):						
Personnel:	Gilisa G	Sould and Larissa B	rown		CR 550					
Current Weat	her Cond	ditions: clear		Facility Nar	me:	Powell Gardens WWTF				
Weather cond	litions fo	r the past 10 days:2	.17 inches	Permit Nun	nber:	MO0123501				
Drought cond	itions?: N	No drought ☑ ; Pha	se I □ ; Phase	: II □ ; Phas	e III □ ; Pl	hase IV □ ; Ur	nknown 🗆			
Site Location	n:									
		(Universal Transver	se Mercator P	rojection, In	Meters					
Site 01	Easting	(UTM X):	Northing (UTI	M Y):		Horizontal Ac	ccuracy:	Meters		
		0408788		4301366				5.1		
Site 11	Easting	ı (UTM X):	Northing (UTI	——— И Y):		Horizontal Accuracy: Me				
		0408880		4301186				4.2		
4.2										
Photos:						1	1			
Photo ID#	Photo Purpose		Photo ID#:	D#: Photo Purpose		Photo ID#:	Photo Pu	rpose		
146	downstream, T1		147	upstream, T1		148	upstream, T11			
Photo ID#	Р	hoto Purpose	Photo ID#	Photo F	Purpose	Photo ID#	Photo Pu	rpose		
149		downstream, T11	150	cow tracks						
Photo ID#	Р	Photo Purpose	Photo ID#	Photo F	Purpose	Photo ID#	Photo Purpose			
		_								
Uses Observ	ed:									
☐ Swimming)	☐ Skin diving	□ SCUBA d	iving	☐ Tubin	g	□ Water Skiin	g		
☐ Wind surfi	ng	☐ Kayaking	☐ Boating		□ Wadir	ng	□ Rafting			
☐ Hunting		☐ Trapping	☐ Fishing		☑ None	of the above	☐ Other:			
Describe:		777 3								

WBID#	924
Site #	1

	Data Sheet B- Site Characterization (Continued)						
Surrounding Condition	ons:						
☐ City/County parks	☐ playgrounds	☐ MDC conservation	on lands	☐ Urban areas	☑ Rural	Residential	
☐ Campgrounds	☐ State parks	□ National Forests		☐ Nature trails		/walkways	
☐ Boating accesses	☑ Fence	☐ No tresspass sig		☐ Steep Slopes	☐ Other		
Comments:							
none							
	_						
Evidence of Human U				_	•		
□ Roads	☐ Foot path/prints	☐ Dock/platform		☐ Camping Sites			
☐ RV/ATV Tracks	☐ Fire pit/ring	☐ NPDES Discharg	je	☐ Fishing Tackle	☐ Livest	ock watering	
comments/other:							
none							
Substrate:							
% Cobble	% Gravel	% Sand	% Silt	% Mud	/Clay	% Bedrock	
/0 CODDIE	60	76 Sand 20	/0 JIIL	76 Mud	•	/6 Deditory	
					<u> </u>		
Aquatic Vegatation:							
/ Iqualio 1 ogululio							
none							
Water Characteristics	s:						
Odor:	☐ Sewage	☐ Musky	☐ Chemi	cal 🗹	None	☐ Other:	
Color:	☐ Clear	□Green	☐ Gray	$\overline{\square}$	Milky	☑ Other:	
			-		•	brown	
Bottom Deposit:	☐ Sludge	☐ Solids	☐ Fine se	ediments 🗹	None	☐ Other:	
Surface Deposit:	□ Oil	☐ Scum	☐ Foam	$\overline{\checkmark}$	None	☐ Other:	

WBID#	924
Site #	1

Channel Feature

Field Data Sheets for Recreational Use Stream Surveys

Distance from Width (m) Length (m) Median Depth (m)

Data Sheet B - Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

	access location (m)		

Comments: (Please re	cord any additional comments	here.)			
	none				
Please verify that yo complete.	ou have completed all s	ections, checke	d all applicable	boxes, and that the	form is
Surveyor's Signature:	gilisa gould		Date of Survey:	10.26.07	
Organization:	SES Inc		Position:	field team leader	

Field Data Sheets for Recreational Use Stream Surveys Data Sheet C - Field Survey Results

																		Disso	lved O	xygen		
			924													Date:	10.26.0	7		Time:	14:50	
							_	een low b								Di	issolved	Oxygen:		5.7	(mg/L)	
	01	UTM X	:	0408788	3	1	UTM Y:		430136	6		+/-	5.1	(meters)		Di	issolved	Oxygen:			(% sat)	
		UTM X e Stream		0408880)	•		(meters)		ength of	•	+/-	4.2	(meters)	(meters)		Specif	ic Cond:			(µS/cm)	
	_		ength of I	Reach)				(meters)		20x avera		-		120	(meters)	Wa	iter Tem	perature:		15.3	(°C)	
	Fie	ld Staff:			Gilisa G	ould and	l Larissa	Brown						-								
										Tra	nsect C	ross-Se	ction									
	()1	0	2	0	3		04	()5	0	6		07	0	8	0	9	1	0	1	1
Station	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
eft Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.1	0.01	0.6	0.20	0.1	0.05	0.2	0.01	0.3	0.05	0.8	0.05	0.1	0.05	0.2	0.01	0.1	0.01	0.5	0.01	0.1	0.01
2	0.1	0.01	1.2	0.35	0.2	0.10	0.4	0.01	0.6	0.15	1.6	0.20	0.2	0.10	0.4	0.01	0.1	0.01	1.0	0.05	0.2	0.01
3	0.2	0.01	1.8	0.50	0.3	0.10	0.6	0.01	0.9	0.30	2.4	0.40	0.3	0.10	0.6	0.05	0.2	0.01	1.5	0.10	0.3	0.01
4	0.2	0.05	2.4	0.50	0.4	0.10	0.8	0.01	1.2	0.35	3.2	0.30	0.4	0.10	0.8	0.01	0.2	0.01	2.0	0.15	0.4	0.01
5	0.3	0.05	3.0	0.60	0.5	0.05	1.0	0.01	1.5	0.25	4.0	0.35	0.5	0.10	1.0	0.05	0.3	0.05	2.5	0.15	0.5	0.01
6	0.3	0.05	3.6	0.55	0.6	0.05	1.2	0.01	1.8	0.25	4.8	0.50	0.6	0.10	1.2	0.05	0.3	0.05	3.0	0.10	0.6	0.40
7	0.4	0.05	4.2	0.40	0.7	0.05	1.4	0.01	2.1	0.15	5.6	0.70	0.7	0.05	1.4	0.05	0.4	0.01	3.5	0.10	0.7	0.05
8	0.4		4.8		0.8		1.6		2.4		6.4			0.05	1.6		0.4		4.0		0.8	
9	0.5		5.4		0.9		1.8		2.7		7.2				1.8		0.5		4.5		0.9	
ight Bank	0.5	0.00	6.0	0.00	1.0	0.00	2.0	0.00	3.0	0.00	8.0	0.00	1.0	0.00	2.0	0.00	0.5	0.00	5.0	0.00	1.0	0.00
ffle, run, or pool	rif	ffle	рс	ool	рс	ool	ri	ffle	ро	ool	рс	ool	р	ool	ро	ol	rif	fle	рс	ool	rif	fle

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Agnea: Sinsa goara Date: 11.05.07	Signed:	gilisa gould	Date:	11.05.07	
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WBID#	924
Site #	2

Data Sheet B-Site Characterization

Date & Time:	10.26.0	7 15:30	ı	Site Location	Site Location Description (e.g. road crossing):					
Personnel:	Gilisa G	Sould and Larissa B	rown		CR 1601					
Current Weatl	her Cond	ditions: clear		Facility Nar	me:	Powell Gardens WWTF				
Weather cond	litions for	r the past 10 days:2	2.17 inches	Permit Nun	nber:	MO0123501				
Drought cond	itions?: N	No drought ☑ ; Pha	se I □ ; Phase	· II □ ; Phas	e III □ ; Pl	hase IV □ ; Ur	nknown 🗆			
Site Location	1:									
		(Universal Transver	se Mercator P	rojection, In	Meters					
Site 01	Easting	(UTM X):	Northing (UTI	M Y):		Horizontal Ac	curacy:	Meters		
		0409540		4299255				5.4		
Site 11	Easting	(UTM X):	Northing (UTI	 М Y):		Horizontal Accuracy: Me				
		0409778		4299182			•	4.2		
1.2										
Photos:							1			
Photo ID#	F	Photo Purpose	Photo ID#:	Photo F	Purpose	Photo ID#:	Photo P	urpose		
151		downstream, T1	152	upstream,	T1	153	downstream,	Γ11		
Photo ID#	P	hoto Purpose	Photo ID#	Photo Purpose		Photo ID#	Photo Purpose			
154		upstream, T11								
Photo ID#	Photo Purpose		Photo ID#	Photo F	Purpose	Photo ID#	Photo P	urpose		
Uses Observ	ed:									
☐ Swimming]	☐ Skin diving	☐ SCUBA d	iving	☐ Tubin	g	☐ Water Skii	ng		
☐ Wind surfi	ing	☐ Kayaking	☐ Boating		□ Wadir	ng	□ Rafting			
☐ Hunting		☐ Trapping	☐ Fishing		☑ None	of the above	☐ Other:			
Describe:			1 —9		1		1			

WBID#	924
Site #	2

Data Sheet B- Site Characterization (Continued)

	Data Sileet D-	Site Characterization	iii (Collilii	iueuj		
Surrounding Conditi	ons:					
☐ City/County parks	□ playgrounds	☐ MDC conservati	on lands	☐ Urban areas	☑ Rural I	Residential
☐ Campgrounds	☐ State parks	□ National Forests	;	☐ Nature trails	☐ Stairs/	walkways
☐ Boating accesses	☐ Fence	☐ No tresspass sig	jn	☐ Steep Slopes	☐ Other	:
Comments:						
none						
Evidence of Human	lise.					
☐ Roads	☐ Foot path/prints	☐ Dock/platform		☐ Camping Sites	☐ Rope s	swings
☐ RV/ATV Tracks	☐ Fire pit/ring	☐ NPDES Discharg	ie	☐ Fishing Tackle		ock watering
comments/other:	<u> </u>		,			<u> </u>
none						
Substrate:						
% Cobble	% Gravel	% Sand	% Silt	% Mud	/Clay	% Bedrock
30	30	10	70 One	70 Wida	Olay	30
Aquatic Vegatation:						
some gras	ses in water. Algal g	growth 20%.				
Water Characteristic	•					
Odor:		☐ Musky	☐ Chem	ical 🗹	None	☐ Other:
Color:	☐ Sewage ☐ Clear	□Green	☐ Gray		Milky	☐ Other:
00101.	_ Olcai	<u> </u>	ப Gray	⊔	ivility	brown
Bottom Deposit:	□ Sludge	□ Solids	☐ Fine s	ediments 🗹	None	☐ Other:
Surface Deposit:	□ Oil	☐ Scum	☐ Foam		None	☐ Other:

WBID#	924
Site #	2

Data Sheet B - Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses

Channel Feature	Distance from	Width (m)	Length (m)	the survey that may support Median Depth (m)	Max Depth (m)
	access location (m)				
omments: (Please red	cord any additional comments I	here.)			
ne					
pase verify that yo	u have completed all s	actions chacks	ad all annlicable	hoves and that the	form is
	u have completed all s	ections, checke	ed all applicable	boxes, and that the	form is
	u have completed all s	ections, checke	ed all applicable	boxes, and that the	form is
ease verify that yo omplete.	u have completed all s	ections, checke	ed all applicable	boxes, and that the	form is
mplete.					form is
mplete.	u have completed all so				form is
mplete.					form is
rveyor's Signature:			_Date of Survey:		form is

Field Data Sheets for Recreational Use Stream Surveys Data Sheet C - Field Survey Results

																		Disso	lved Ox	ygen		
	Waterbo	ody ID:	924			Site #:	2									Date:	10.26.07	1		Time:	15:30	
	Estimat	ed Chanı	nel Incisi	on:	1.0	(m) (hei	ght betw	reen low b	ank wid	th and wa	ater)											
						-		izontal Ac	-		•		-									
		UTM X		0409540						5	Ī	+/-	5.4 4.2	(meters)		Di	ssolved	Oxygen:			(% sat)	
	11	UIMIA		0409776		•	O I IVI I .		423323.	,		1/-	4.2	(ineters)			Specifi	c Cond:			(µS/cm)	
					8			(meters)		ength of				160	(meters)							
	(To dete	ermne Le	ength of I	Reach)					(2	20x avera	ge strear	n width)				Wa	ter Temp	erature:		18.5	(°C)	
	Fie	ld Staff:			Gilisa G	ould and	l Larissa	Brown						•								
										Tra	nsect C	ross-Se	ction									
	()1	0	2	0	3		04	C)5	0	6	(07	08	3	0	9	1	0	1:	1
Station	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m						
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1.0	0.01	1.2	0.05	1.5	0.01	1.2	0.10	0.7	0.05	1.0	0.05	1.0	0.10	0.6	0.01	0.5	0.05	0.5	0.01	0.3	0.0
2	2.0	0.00	2.4	0.15	3.0	0.00	2.4	0.30	1.4	0.15	2.0	0.20	2.0	0.40	1.2	0.10	1.0	0.10	1.0	0.05	0.6	0.0
3	3.0	0.01	3.6	0.20	4.5	0.00	3.6	0.40	2.1	0.00	3.0	0.05	3.0	0.45	1.8	0.20	1.5	0.20	1.5	0.05	0.9	0.0
4	4.0												4.0		2.4							0.03
4	5.0	0.01	6.0	0.25	7.5	0.00	6.0	0.70	3.5			0.30	5.0	0.55	3.0	0.50	2.5	0.40	2.5	0.05	1.5	
	6.0	0.00	7.2	0.40	9.0	0.00	7.2	0.65	4.2	0.20	6.0	0.50	6.0	0.50	3.6	0.45	3.0	0.45	3.0	0.05	1.8	0.13
•	7.0	0.01	8.4	0.55	10.5	0.00	8.4	0.40	4.9	0.15	7.0	0.40	7.0	0.40	4.2	0.40	3.5	0.50	3.5	0.01	2.1	0.13
8	8.0	0.00	9.6	0.50	12.0	0.01	9.6	0.20	5.6	0.01	8.0	0.20	8.0	0.25	4.8	0.30	4.0	0.40	4.0	0.01	2.4	0.10
ģ	9.0	0.01	10.8	0.25	13.5	0.05	10.8	0.15	6.3	0.01	9.0	0.05	9.0	0.10	5.4	0.10	4.5	0.15	4.5	0.01	2.7	0.0
Right Bank	10.0	0.00	12.0	0.00	15.0	0.00	12.0	0.00	7.0	0.00	10.0	0.00	10.0	0.00	6.0	0.00	5.0	0.00	5.0	0.00	3.0	0.00
eature Type																						
iffle, run, or poo	ı rit	ffle	pc	ool	rif	fle	p	ool	po	ool	pc	ool	pe	ool	po	ol	po	ol	pc	ol	po	ol

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: ginsa gould Date: 11.05.0/	Date: 11.05.07	gilisa gould	Signed:
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Data Sheet B-Site Characterization

Date & Time:	10.26.07 17:05	i 	Site Location	on Descrip	tion (e.g. road	crossing):	
Personnel:	Gilisa Gould and Larissa B	rown		CR 325			
Current Weatl	her Conditions: clear		Facility Nar	me:	Powell Garde	ens WWTF	
Weather cond	litions for the past 10 days:2	2.17 inches	Permit Num	nber:	MO0123501		
Drought cond	itions?: No drought ☑ ; Pha	se I □ ; Phase	· II □ ; Phas	e III □ ; PI	hase IV □ ; Ur	nknown 🗆	
-	-						
Site Location	· ·						
	rdinates (Universal Transver	se Mercator P	rojection, In	Meters			
Site 01	Easting (UTM X):	Northing (UTN	М <u>Y):</u>		Horizontal Ac	ccuracy:	Meters
	0410051		4297185				5.1
Site 11	Easting (UTM X):	Northing (UTN	M Y):		Horizontal Ac	curacy:	Meters
	0410272		4296999			•	3.3
	0710212	<u>.I</u>	420000				0.0
Photos:	·				 	<u> </u>	
Photo ID#	Photo Purpose	Photo ID#:	Photo F	ourpose	Photo ID#:	Photo Pur	rpose
155	downstream, T1	156	upstream,	Γ1	157	downstream, T1	11
Photo ID#	Photo Purpose	Photo ID#	Photo P	urpose	Photo ID#	Photo Pur	rpose
158	upstream, T11						
Photo ID#	Photo Purpose	Photo ID#	Photo F	urpose	Photo ID#	Photo Pur	pose
			<u> </u>				
Uses Observ	ed:						
☐ Swimming	☐ Skin diving	☐ SCUBA di	iving	☐ Tubing	g	☐ Water Skiing	g
☐ Wind surfi	ng □ Kayaking	☐ Boating		□ Wadir	ng	☐ Rafting	
☐ Hunting	☐ Trapping	☐ Fishing		☑ None	of the above	☐ Other:	
Describe:		<u>. </u>					

WBID#	924
Site #	3

Data Sheet B- Site Characterization (Continued)

Surrounding Condition	ons:				
☐ City/County parks	□ playgrounds	☐ MDC conservation	on lands □ Urbar	n areas 🛮 🗹 R	ural Residential
☐ Campgrounds	☐ State parks	□ National Forests	☐ Nature	e trails 🔲 St	tairs/walkways
☐ Boating accesses	☐ Fence	☐ No tresspass sig	n ☐ Steep	Slopes □ C	Other:
Comments: none					
Evidence of Human l			<u>'= </u>		
□ Roads	☐ Foot path/prints	☐ Dock/platform	☐ Campi		ope swings
□ RV/ATV Tracks	☐ Fire pit/ring	☐ NPDES Discharg	e ☐ Fishing	g Tackle ⊔ Li	vestock watering
comments/other:					
none					
Substrate:					
% Cobble	% Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock
20				10	70
Aquatic Vegatation:					
Algal grow	th is 20%.				
Water Characteristic					
Odor:	☐ Sewage		☐ Chemical	☑ None	☐ Other:
Color:	☐ Clear	□Green	☐ Gray	☐ Milky	☑ Other:
Datters Dancoit		□ 0-1:4-	□ Circ codimente	□ None	brown
Bottom Deposit:	□ Sludge	☐ Solids	☑ Fine sediments	☐ None	□ Other:
Surface Deposit:	□ Oil	☐ Scum	□ Foam	✓None	☐ Other:

WBID#	924
Site #	3

Data Sheet B - Site Characterization (continued)

Additional Stream Mor	pholoay:	(Record isolated p	ools or other	features identified during	the survey that may	v support recreational uses)

	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)
omments: (Please re	ecord any additional comments	here.)			
one					
lease verify that yo omplete.	ou have completed all s	ections, checke	ed all applicable	boxes, and that the	form is
omplete.	ou have completed all s				form is

Field Data Sheets for Recreational Use Stream Surveys Data Sheet C - Field Survey Results

																		Disso	lved Ox	ygen		
	Waterbo	ody ID:	924			Site #:	3		·							Date:	10.26.07	,		Time:	17:05	
	Estimate	ed Chanr	nel Incisio	on:	2.0	(m) (hei	ght betw	een low b	ank wid	th and wa	ater)					'	ssolved (
	GPS Lo	cation - I	Easting (UTM X).	, Northir	ng (UTM	Y), Hor	izontal Ac	curacy I	Estimate	(EPE / P	DOP / FO	OM)					, 8			(8)	
	01	UTM X	:	0410051	[_ 1				5	•	+/-	5.1	(meters)		Di	ssolved (Oxygen:			(% sat)	
	11	UTM X	:	0410272	2		UTM Y:		4296999	9		+/-	3.3	(meters)								
	Average	Stream	Width:		10			(meters)	L	ength of	Survey S	Segment:		200	(meters)		Specifi	c Cond:			(μS/cm)	
	(To dete	ermne Le	ngth of F	Reach)					(2	20x avera	ige strear	n width)				Wa	ter Temp	erature:		17.2	(°C)	
	Fiel	d Staff:			Gilisa G	ould and	l Larissa	Brown														
										Tra	nsect C	ross-Se	ction									
				-																		
	Distance	1	Distance	2	Distance)3 	Distance	04	Distance)5 	Distance	6	Distance	07	08	}	Distance	9	1 Distance	0	Distance	1
Station	(m)	Depth (m)		Depth (m)	(m)	Depth (m)		Depth (m)	(m)	Depth (m)		Depth (m)	(m)	Depth (m)	Distance (m)	Depth (m)	(m)	Depth (m)	(m)	Depth (m)		Depth (m)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.9	0.15	1.0	0.05	1.1	0.01	0.9	0.05	0.9	0.01	0.9	0.05	0.7	0.01	0.8	0.01	1.4	0.15	0.3	0.10	0.5	0.10
2	1.8	0.15	2.0	0.05	2.2	0.10	1.8	0.05	1.8	0.05	1.8	0.15	1.4	0.05	1.6	0.01	2.8	0.30	0.6	0.15	1.0	0.20
3	2.7	0.10	3.0	0.05	3.3	0.20	2.7	0.05	2.7	0.10	2.7	0.20	2.1	0.10	2.4	0.01	4.2	0.40	0.9	0.05	1.5	0.50
4	3.6	0.15	4.0	0.10	4.4	0.20	3.6	0.01	3.6	0.15	3.6	0.20	2.8	0.10	3.2	0.05	5.6	0.50	1.2	0.05	2.0	0.60
5	4.5	0.10	5.0	0.10	5.5	0.20	4.5	0.01	4.5	0.25	4.5	0.15	3.5	0.05	4.0	0.10	7.0	0.55	1.5	0.05	2.5	0.55
6	5.4	0.10	6.0	0.05	6.6	0.15	5.4	0.00	5.4	0.15	5.4	0.20	4.2	0.10	4.8	0.25	8.4	0.50	1.8	0.05	3.0	0.40
7	6.3	0.10	7.0	0.05	7.7	0.20	6.3	0.05	6.3	0.20	6.3	0.20	4.9	0.00	5.6	0.15	9.8	0.60	2.1	0.05	3.5	0.30
8	7.2	0.10	8.0	0.10	8.8	0.25	7.2	0.00	7.2	0.10	7.2	0.15	5.6	0.01	6.4	0.05	11.2	0.40	2.4	0.05	4.0	0.20
9	8.1	0.01	9.0	0.01	9.9	0.15	8.1	0.01	8.1	0.05	8.1	0.05	6.3	0.01	7.2	0.01	12.6	0.10	2.7	0.01	4.5	0.10
Right Bank	9.0	0.00	10.0	0.00	11.0	0.00	9.0	0.00	9.0	0.00	9.0	0.00	7.0	0.00	8.0	0.00	14.0	0.00	3.0	0.00	5.0	0.00
Feature Type																						
riffle, run, or pool	pool pool pool pool pool		ri	ffle	poo	pool pool		rif	riffle pool		ol											

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: gilisa gould Date: 11.05.07

WBID#	924
Site #	4

Data Sheet B-Site Characterization

Date & Time:	10.29.07 15:40	·	Site Location	on Descrip	tion (e.g. road	crossing):				
Personnel:	Gilisa Gould and Larissa B	rown	CR 200							
Current Weat	her Conditions: clear		Facility Nar	me:	Powell Garde	ens WWTF				
Weather cond	litions for the past 10 days:2	2.17 inches	Permit Nun	Permit Number: MO0123501						
Drought conditions?: No drought ☑ ; Phase I □ ; Phase II □ ; Phase III □ ; Phase IV □ ; Unknown □										
Site Location	·									
	rdinates (Universal Transver	se Mercator P	rojection, In	Meters						
Site 01	Easting (UTM X):	Northing (UTN	М <u>Y):</u>		Horizontal Ac	ccuracy:	Meters			
	0411333		4295020				7.6			
Site 11	Easting (UTM X):	Northing (UTN			Horizontal Ac	curacy:	Meters			
	0411194		4294841		16.1					
Photos:	·		.		1					
Photo ID#	Photo Purpose	Photo ID#:	Photo F	Purpose	Photo ID#:	Photo P	urpose			
173	downstream, T1	174	upstream,	Τ1	175	downstream,	Γ11			
Photo ID#	Photo Purpose	Photo ID#	Photo P	Purpose	Photo ID# Ph		urpose			
176	upstream, T11									
Photo ID#	Photo Purpose	Photo ID#	Photo F	Purpose	Photo ID#	Photo P	urpose			
			<u> </u>							
Uses Observ	ed:									
☐ Swimming	☐ Skin diving	☐ SCUBA di	iving	☐ Tubin	g	□ Water Skii	ng			
☐ Wind surfi	ng □ Kayaking	☐ Boating		□ Wadir	ng	□ Rafting				
☐ Hunting	☐ Trapping	☐ Fishing		☑ None	of the above	☐ Other:				
Describe:		<u>. </u>								

WBID#	924
Site #	4

Data Sheet B- Site Characterization (Continued)

Surrounding Conditi	ions:				
☐ City/County parks	☐ playgrounds	☐ MDC conservation	on lands □ Urbar	n areas ☑ Ru	ıral Residential
☐ Campgrounds	☐ State parks	□ National Forests	S □ Nature		airs/walkways
☐ Boating accesses	☑ Fence	☐ No tresspass sig	gn □ Steep	Slopes □ Ot	ther:
Comments: none					
Evidence of Human					
□ Roads	☐ Foot path/prints				ppe swings
☐ RV/ATV Tracks	☐ Fire pit/ring	☐ NPDES Discharg	je □ Fishin	ng Tackle │□ Liv	estock watering
comments/other:					
none					
Substrate: % Cobble	% Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock
70 CODDIE	30	% Sand 30	70 SIII	30	/0 Dedicon
Aquatic Vegatation:					
Water Characteristic					
Odor:	☐ Sewage	□ Musky	☐ Chemical	☑ None	☐ Other:
Color:	☑ Clear	□Green	☐ Gray	☐ Milky	☑ Other:
Datters Danagit			TT: andimente		brown
Bottom Deposit: Surface Deposit:	☐ Sludge ☐ Oil	☐ Solids ☐ Scum	☑Fine sediments☐ Foam	☐ None ☑None	☐ Other: ☐ Other:
	1 1 1 111			V V C C	

WBID#	924
Site #	4

Data Sheet B - Site Characterization (continued)

Additional Stream Mor	phology:	(Record isolated pools	or other features	identified during	the survey that m	av support recreational uses)

Channel Feature	Distance from	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)
	access location (m)				
mmonto: /Diseas va	and any additional agreements b				
Jillillelits. (Please le	cord any additional comments h	iere.)			
	none				
	ou have completed all so	ections, checke	ed all applicable	boxes, and that the	form is
lease verify that yo	ou have completed all so	ections, checke	ed all applicable	boxes, and that the	form is
	ou have completed all s	ections, checke	ed all applicable	boxes, and that the	form is
omplete.					form is
omplete.	ou have completed all so gilisa gould				form is
omplete.					form is

Field Data Sheets for Recreational Use Stream Surveys Data Sheet C - Field Survey Results

																		Disso	lved Ox	ygen		
			924													Date:	10.29.07	7		Time:	15:40	
				•			_	een low b								Di	issolved	Oxygen:		14.9	(mg/L)	
	01	cation - l UTM X UTM X	:	UTM X) 0411333 0411194	3			zontal Ac				DOP / FO +/- +/-	7.6	(meters)		Dissolved Oxygen:(% sat)						
			Width:			-		(meters)		ength of					(meters)		Specifi	ic Cond:			(µS/cm)	
	(To determne Length of Reach) (20x average stream width)							(/	Wa	ter Temp	erature:		16.1	(°C)								
	Fiel	d Staff:			Gilisa G	ould and	l Larissa	Brown														
										Tra	nsect C	ross-Se	ction									
	0	1	0	2	0	13	()4	C	5	0	6		07	0	8	0	9	1	0	1	1
Station	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m
eft Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.7	0.01	0.8	0.05	0.1	0.01	0.7	0.05	0.1	0.05	0.2	0.01	0.8	0.10	0.1	0.01	0.2	0.05	0.8	0.05	0.3	0.01
2	1.4	0.05	1.6	0.20	0.2	0.01	1.4	0.20	0.1	0.05	0.4	0.01	1.6	0.35	0.2	0.05	0.4	0.05	1.6	0.05	0.6	0.05
3	2.1	0.00	2.4	0.25	0.3	0.05	2.1	0.30	0.2	0.15	0.6	0.01	2.4	0.50	0.3	0.10	0.6	0.10	2.4	0.05	0.9	0.10
4	2.8	0.05	3.2	0.25	0.4		2.8	0.30	0.2		0.8		3.2	0.40					3.2	0.20		0.25
5	3.5	0.25	4.0		0.5		3.5	0.40	0.3		1.0		4.0									
6	4.2	0.20	4.8 5.6		0.6		4.2	0.40	0.3				4.8	0.30							2.1	
8	5.6				0.7		5.6		0.4		1.4		5.6 6.4						6.4			0.05
9	6.3	0.10			0.9		6.3	0.20	0.5		1.8		7.2	0.05					7.2		2.7	0.01
ight Bank	7.0	0.00	8.0	0.00	1.0	0.00	7.0	0.00	0.5	0.00	2.0	0.00	8.0	0.00	1.0	0.00	2.0	0.00	8.0	0.00	3.0	0.00
eature Type	nc	ool	pc	ool	rif	fle	ne	ool	rif	fle	rif	fle	n	ool	ро	ol	nc	ool	pc	ol .	ро	ol

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: gilisa gould Date: 11.05.07

WBID#	924
Site #	5

Data Sheet B-Site Characterization

Date & Time:	10.29.0	7 16:15		Site Location	on Descrip	tion (e.g. road	crossing):	
Personnel:	Gilisa C	Sould and Larissa B	rown		CR 100			
Current Weat	her Cond	ditions: clear		Facility Nar	me:	Powell Garde	ens WWTF	
Weather cond	litions fo	r the past 10 days:2	.17 inches	Permit Nun	nber:	MO0123501		
Drought cond	itions?: I	No drought ☑ ; Pha	se I □ ; Phase	II □ ; Phas	e III □ ; PI	hase IV □ ; Ur	nknown 🗆	
-								
Site Location								
		(Universal Transver	se Mercator P	rojection, In	Meters			
Site 01	Easting	(UTM X):	Northing (UTI	M Y):		Horizontal Ac	curacy:	Meters
		0411680		4293215				5.7
Site 11	Easting	ı (UTM X):	Northing (UTI	M Y):		Horizontal Ac	curacy:	Meters
		0411531	3 (3	4293061			<u> </u>	17.3
		0411331		4293001				17.3
Photos:								
Photo ID#	F	Photo Purpose	Photo ID#:	Photo F	Purpose	Photo ID#:	Photo F	Purpose
177		downstream, T1	178	upstream,	T1	179	downstream,	T11
Photo ID#	F	hoto Purpose	Photo ID#	Photo F	Purpose	Photo ID#	Photo F	Purpose
180		upstream, T11						
Photo ID#	F	Photo Purpose	Photo ID#	Photo F	Purpose	Photo ID#	Photo F	Purpose
Uses Observ	ed:							
☐ Swimming		☐ Skin diving	□ SCUBA d	iving	☐ Tubin	g	☐ Water Ski	ing
☐ Wind surfi	ng	☐ Kayaking	☐ Boating		□ Wadir	ng	☐ Rafting	
☐ Hunting		☐ Trapping	☐ Fishing			of the above	☐ Other:	
Describe:			1 —9		1		1	

WBID#	924
Site #	5

Data Sheet B- Site Characterization (Continued)

Surrounding Condition	ons:				
☐ City/County parks	☐ playgrounds	☐ MDC conservation	on lands 🔲 Urba	an areas	☑ Rural Residential
☐ Campgrounds	☐ State parks	□ National Forests			☐ Stairs/walkways
☐ Boating accesses	☐ Fence	☐ No tresspass sig	n ☐ Steer	p Slopes	☐ Other:
Comments:					
none					
Evidence of Human l	Use:				
□ Roads	☐ Foot path/prints	☐ Dock/platform	☐ Cam	ping Sites	☐ Rope swings
☐ RV/ATV Tracks	☐ Fire pit/ring	☐ NPDES Discharg		ng Tackle	☐ Livestock watering
comments/other:					
none					
Substrate:					
% Cobble	% Gravel	% Sand	% Silt	% Mud/0	Clay % Bedrock
10	30	30	10	10	•
Aquatic Vegatation:					
Aquatic Vegatation.					
none					
Water Characteristic					
Odor:	☐ Sewage	□ Musky	☐ Chemical		None
Color:	☑ Clear	□Green	□ Gray		Milky DOther:
Bottom Deposit: Surface Deposit:	☐ Sludge	☐ Solids	☑ Fine sediments	s ⊔r	None ☐ Other:
	□ Oil	☐ Scum	□ Foam		lone ☐ Other:

WBID#	924
Site#	5

Data Sheet B - Site Characterization (continued)

Additional Stream Mor	phology:	(Record isolated pools	or other features	identified during	the survey that may	support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)
_					_
-					
omments: (Please re	cord any additional comments	here.)			
one					
					_
lease verify that yo omplete.	ou have completed all s	ections, checke	ed all applicable	boxes, and that the	form is
urveyor's Signature:	gilisa gould		_Date of Survey:	10.29.07	
•	SES, Inc.			field team leader	

Field Data Sheets for Recreational Use Stream Surveys Data Sheet C - Field Survey Results

																		Disso	lved Ox	xygen		
			924													Date:	10.29.07	,	ī	Time:	16:15	
						1)		een low b								Di	issolved (Oxygen:		7.5	(mg/L)	
	01	UTM X	:	0411680)	1	UTM Y:		429321	5	`	+/-	5.7	(meters)		Di	issolved (Oxygen:			(% sat)	
				0411531		-					•	+/-	17.3	(meters)	•		Specifi	c Cond:			(µS/cm)	
			Width: ength of F		7			(meters)		ength of 20x avera	-	_		150	(meters)	Wa	ter Temp	erature:		13.9	(°C)	
	Fiel	ld Staff:			Gilisa G	ould and	l Larissa	Brown														
										Tra	nsect C	ross-Se	ction									
	0)1	0	2	0	3		04	()5	0	6		07	08	3	09	9	1	0	1	1
Station	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
eft Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.5	0.05	0.2	0.05	0.5	0.01	0.6	0.05	0.7	0.05	0.6	0.05	0.3	0.05	0.2	0.05	0.5	0.05	0.8	0.05	0.7	0.10
2	1.0	0.10	0.4	0.05	1.0	0.05	1.2	0.05	1.4	0.10	1.2	0.05	0.6	0.10	0.4	0.10	1.0	0.15	1.6	0.10	1.4	0.20
3	1.5	0.15	0.6	0.10	1.5	0.05	1.8	0.10	2.1	0.10	1.8	0.20	0.9	0.30	0.6	0.15	1.5	0.30	2.4	0.25	2.1	0.20
4	2.0	0.30	0.8	0.15	2.0	0.05	2.4	0.10	2.8	0.00	2.4	0.40	1.2	0.40	0.8	0.15	2.0	0.35	3.2	0.00	2.8	0.25
5	2.5	0.25	1.0	0.20	2.5	0.05	3.0	0.15	3.5	0.00	3.0	0.60	1.5	0.35	1.0	0.15	2.5	0.30	4.0	0.00	3.5	0.30
6	3.0	0.15	1.2	0.20	3.0	0.05	3.6	0.15	4.2	0.01	3.6	0.60	1.8	0.20	1.2	0.15	3.0	0.10	4.8	0.00	4.2	0.40
7	3.5	0.10	1.4	0.20	3.5	0.05	4.2	0.20	4.9	0.05	4.2	0.50	2.1	0.10	1.4	0.10	3.5	0.05	5.6	0.05	4.9	0.35
8	4.0	0.05	1.6	0.10	4.0	0.05	4.8	0.15	5.6	0.01	4.8	0.45	2.4	0.05	1.6	0.05	4.0	0.05	6.4	0.10	5.6	0.20
9	4.5	0.01	1.8	0.05	4.5	0.05	5.4	0.10	6.3	0.01	5.4	0.20	2.7	0.01	1.8	0.01	4.5	0.10	7.2	0.15	6.3	0.10
ight Bank	5.0	0.00	2.0	0.00	5.0	0.00	6.0	0.00	7.0	0.00	6.0	0.00	3.0	0.00	2.0	0.00	5.0	0.00	8.0	0.00	7.0	0.00
eature Type		1		1		1		1	•.	ect -		1		a a l		a.1		a.1		. a.l		a.1
ffle, run, or poo	ı pc	ool	pc	100	pc	ool	p	ool	r11	ffle	pc	ool	р	ool	po	UI	po	01	po	100	po	OI

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: gilisa gould Date: 11.05.0	7
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WBID#	924
Site #	6

Data Sheet B-Site Characterization

Date & Time:	10.29.0	7 16:45		Site Location	on Descrip	tion (e.g. road	crossing):	
Personnel:	Gilisa C	Gould and Larissa B	rown		Highway	131		
Current Weat	her Cond	ditions: clear		Facility Nar	me:	Powell Garde	ens WWTF	
Weather cond	litions fo	r the past 10 days:2	.17 inches	Permit Nun	nber:	MO0123501		
Drought cond	itions?: I	No drought ☑ ; Pha	se I □ ; Phase	Ⅱ 🛘 ; Phas	e III □ ; PI	hase IV □ ; Ur	nknown □	
Site Location	١.							
		(Universal Transver	se Mercator Pi	rojection, In	Meters			
Site 01	Easting	ı (UTM X):	Northing (UTN	M Y):		Horizontal Ac	ccuracy:	Meters
		0413971		4291830				7.3
Site 11	Easting	ı (UTM X):	Northing (UTN	M Y):		Horizontal Ac	ccuracy:	Meters
	<u> </u>	0414181	,	4291714			j	5.1
		0414101	<u> </u>	4231714				J. I
Photos:				1		1	1	
Photo ID#	F	Photo Purpose	Photo ID#:	Photo F	Purpose	Photo ID#:	Photo P	urpose
181		downstream, T1	182	upstream,	T1	183	downstream,	T11
Photo ID#	F	Photo Purpose	Photo ID#	Photo F	Purpose	Photo ID#	Photo P	urpose
184		upstream, T11						
Photo ID#	F	Photo Purpose	Photo ID#	Photo F	Purpose	Photo ID#	Photo P	urpose
Uses Observ	ed:							
☐ Swimming]	☐ Skin diving	☐ SCUBA di	iving	☐ Tubin	g	☐ Water Skii	ing
☐ Wind surfi	ng	☐ Kayaking	☐ Boating		□ Wadir	ng	□ Rafting	
☐ Hunting		☐ Trapping	☐ Fishing			of the above	☐ Other:	
Describe:			<u>j — </u>		1		1 - ••	

WBID#	924
Site #	6

Data Sheet B- Site Characterization (Continued)

Surrounding Conditi	ons:					
☐ City/County parks	☐ playgrounds	☐ MDC conse	rvation lands	☐ Urban areas	☐ Rural Reside	ntial
☐ Campgrounds	☐ State parks	☐ National For	rests	☐ Nature trails	☐ Stairs/walkwa	ays
☐ Boating accesses	☐ Fence	☐ No tresspas	ss sign	☐ Steep Slopes	☐ Other:	
Comments: none						
Evidence of Human		1-5-11-16			·	
☐ Roads	☐ Foot path/prints			☐ Camping Sites	☐ Rope swings	
☐ RV/ATV Tracks	☐ Fire pit/ring	☐ NPDES Disc	charge	☐ Fishing Tackle	☐ Livestock wat	ering
comments/other:						
none						
						ļ
Substrate:						
% Cobble	% Gravel	% Sand	% Silt	% Mud/		drock
	% Gravel 30	% Sand 30	% Silt 10	% Mud/ 10		drock 0
% Cobble						
% Cobble 10						
% Cobble 10 Aquatic Vegatation: none Water Characteristic	30 s:	30	10	10	1	0
% Cobble 10 Aquatic Vegatation: none Water Characteristic Odor:	30 s : □ Sewage	30 □ Musky	10 □ Chem	10) 1	0 her:
% Cobble 10 Aquatic Vegatation: none Water Characteristic	30 s:	30	10	10	None □ Ot Milky ☑ Ot	her:
% Cobble 10 Aquatic Vegatation: none Water Characteristic Odor: Color:	30 s: □ Sewage ☑ Clear	30 ☐ Musky ☐ Green	Chem Gray	ical ☑	None □ Ot Milky ☑ Ot	her:
% Cobble 10 Aquatic Vegatation: none Water Characteristic Odor:	30 s : □ Sewage	30 □ Musky	Chem Gray	ical ☑ ediments □	None □ Ot Milky ☑ Ot	her: her:

WBID#	924
Site#	6

Organization: SES, Inc.

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization (continued)

Additional Stream Mor	phology:	(Record isolated pools of	or other features	identified during	the survey that may	support recreational uses)

	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)
	I				
omments: (Please re	cord any additional comments	here.)			
, , , , , , , , , , , , , , , , , , , ,		,			
ne					
••••					
ease verify that yo	ou have completed all s	ections, checke	d all applicable	boxes, and that the	form is

Position: field team leader

Field Data Sheets for Recreational Use Stream Surveys Data Sheet C - Field Survey Results

															l l			Disso	lved Ox	ygen			
	Waterbo	ody ID:	924		<u>-</u>	Site #:	6		•							Date:	10.29.07	,		Time:	16:45		
	Estimate	ed Chanr	nel Incisi	on:	3.0	(m) (hei	ight betw	een low b	ank wid	th and wa	ater)					Di	ssolved (Oxygen:		9.2	(mg/L)		
		cation - I		UTM X) 0413971	M X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 3971 UTM Y: 4291830 +/- 7.3 (meters)													(9/, cot)					
		UTM X		0413971						4		+/-	5.1	(meters)	•	Di	Dissolved Oxygen:				_		
	Average Stream Width: 8 (meters) Length of Survey Segment: 160 (meters)								(meters)		Specifi	c Cond:			(μS/cm)								
			ength of I						•	20x avera						Wa	ter Temp	erature:		12.5	(°C)		
	Fiel	ld Staff:			Gilisa G	ould and	d Larissa	Brown						<u>-</u>									
	Transect Cross-Section																						
	0	01 02 03 04 05 06 07						08	08 09		9	10		11									
Station	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m	
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1	0.3	0.05	0.8	0.01	0.7	0.05	0.7	0.01	0.7	0.01	0.6	0.01	0.1	0.05	0.3	0.05	0.8	0.05	0.7	0.10	0.8	0.10	
2	0.6	0.05	1.6	0.10	1.4	0.05	1.4	0.05	1.4	0.05	1.2	0.10	0.2	0.05	0.6	0.30	1.6	0.20	1.4	0.30	1.6	0.40	
3	0.9	0.01	2.4	0.20	2.1	0.10	2.1	0.20	2.1	0.25	1.8	0.10	0.3	0.10	0.9	0.40	2.4	0.10	2.1	0.55	2.4	0.6	
4	1.2	0.10	3.2	0.70	2.8	0.30	2.8	0.30	2.8	0.30	2.4	0.15	0.4	0.10	1.2	0.30	3.2	0.20	2.8	0.40	3.2	0.70	
5	1.5	0.15	4.0	0.70	3.5	0.50	3.5	0.50	3.5	0.35	3.0	0.15	0.5	0.10	1.5	0.40	4.0	0.10	3.5	0.30	4.0	0.70	
(1.8	0.05	4.8	0.50	4.2	0.50	4.2	0.55	4.2	0.40	3.6	0.10	0.6	0.10	1.8	0.45	4.8	0.30	4.2	0.30	4.8	0.70	
7	2.1	0.05	5.6	0.30	4.9	0.20	4.9	0.30	4.9	0.35	4.2	0.10	0.7	0.10	2.1	0.25	5.6	0.40	4.9	0.30	5.6	0.53	
8	2.4	0.05	6.4	0.05	5.6	0.15	5.6	0.10	5.6	0.25	4.8	0.10	0.8	0.05	2.4	0.10	6.4	0.30	5.6	0.20	6.4	0.40	
9	2.7	0.01	7.2	0.05	6.3	0.05	6.3	0.05	6.3	0.10	5.4	0.05	0.9	0.05	2.7	0.05	7.2	0.25	6.3	0.10	7.2	0.13	
Right Bank	3.0	0.00	8.0	0.00	7.0	0.00	7.0	0.00	7.0	0.00	6.0	0.00	1.0	0.00	3.0	0.00	8.0	0.00	7.0	0.00	8.0	0.00	
eature Type	ı rif	fle	pc	ool	po	ool	p	ool	po	ool	po	ool	rii	ffle	poo	ol	pool		ро	ol	po	ol	
					•										•						•		

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: gilisa gould Date: 11.05.07

WBID#	924
Site #	7

Data Sheet B-Site Characterization

				_							
Date & Time:	10.30.07	7 10:20		Site Location	on Descrip	tion (e.g. road	crossing):				
Personnel:	Gilisa Go	ould and Larissa Br	rown	75th Rd							
Current Weath	her Condi	itions: clear		Facility Nar	ne:	Powell Gardens WWTF					
Weather cond	ditions for	the past 10 days:2.	.17 inches	Permit Nun	nber:	MO0123501					
Drought cond	itions?: N	o drought ☑ ; Phas	se I □ ; Phase	II □ ; Phas	e III □ ; Pł	nase IV □ ; Ur	nknown 🗆				
Site Location:											
		Universal Transvers	se Mercator Pr	rojection, In	Meters						
Site 01	Easting ((UTM X):	Northing (UTN	И <u>Y</u>):		Horizontal Ac	ccuracy:	Meters			
	Γ	0415669		4291455				4.8			
Site 11	Easting ((UTM X):	Northing (UTN	И Y):		Horizontal Ac	curacy:	Meters			
		,		Í			•	4.5			
0415903 4291503 4.5											
Photos:			1	1		1	1				
Photo ID#	Ph	noto Purpose	Photo ID#:	Photo F	Purpose	Photo ID#:	Photo Pu	rpose			
194		downstream, T1	195	upstream, ⁻	Γ1	196	downstream, T	11			
Photo ID#	Ph	noto Purpose	Photo ID#	Photo F	urpose	Photo ID#	Photo Pu	rpose			
197	ι	upstream, T11									
Photo ID#	Ph	noto Purpose	Photo ID#	Photo F	urpose	Photo ID#	Photo Pu	rpose			
Uses Observ	ed:										
☐ Swimming	3	☐ Skin diving	☐ SCUBA di	iving	☐ Tubing	g	☐ Water Skiin	g			
☐ Wind surfi	ing	☐ Kayaking	☐ Boating		□ Wadir	ng	☐ Rafting				
☐ Hunting	1	☐ Trapping	☐ Fishing		☑ None	of the above	☐ Other:				
Describe:		11 0					<u>I</u>				
								ļ			

WBID#	924
Site #	-

Surrounding Conditions: □ City/County parks □ playgrounds □ MDC conservation lands □ Urban areas □ Rural Resident □ Campgrounds □ State parks □ National Forests □ Nature trails □ Stairs/walkway □ Boating accesses ☑ Fence □ No tresspass sign □ Steep Slopes □ Other: Comments:	
□ City/County parks □ playgrounds □ MDC conservation lands □ Urban areas □ Rural Resident □ Campgrounds □ State parks □ National Forests □ Nature trails □ Stairs/walkway □ Boating accesses ☑ Fence □ No tresspass sign □ Steep Slopes □ Other: Comments:	
□ City/County parks □ playgrounds □ MDC conservation lands □ Urban areas □ Rural Resident □ Campgrounds □ State parks □ National Forests □ Nature trails □ Stairs/walkway □ Boating accesses ☑ Fence □ No tresspass sign □ Steep Slopes □ Other: Comments:	
□ Campgrounds □ State parks □ National Forests □ Nature trails □ Stairs/walkway □ Boating accesses ☑ Fence □ No tresspass sign □ Steep Slopes □ Other: Comments:	tial
☐ Boating accesses ☑ Fence ☐ No tresspass sign ☐ Steep Slopes ☐ Other: Comments:	
Comments:	
none	
Evidence of Human Use:	
□ Roads □ Foot path/prints □ Dock/platform □ Camping Sites □ Rope swings □ RV/ATV Tracks □ Fire pit/ring □ NPDES Discharge □ Fishing Tackle □ Livestock wate	
□ RV/ATV Tracks □ Fire pit/ring □ NPDES Discharge □ Fishing Tackle □ Livestock wate	ring
comments/otner:	
none	
none	
Substrate:	
% Cobble % Gravel % Sand % Silt % Mud/Clay % Bed	rock
10 30 30 30	
Aquatic Vegatation:	
grass on banks	
Water Characteristics:	
Odor: ☐ Sewage ☐ Musky ☐ Chemical ☑ None ☐ Oth	er:
Color: ☐ Clear ☐ Green ☐ Gray ☐ Milky ☐ Oth	
Bottom Deposit: ☐ Sludge ☐ Solids ☑ Fine sediments ☐ None ☐ Oth	
Surface Deposit: ☐ Oil ☐ Scum ☐ Foam ☐ None ☐ Oth	er:

WBID#	924
Site #	7

Data Sheet B - Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)
	acces icealien (iii)				
omments: (Please re	cord any additional comments	here.)			
, cease. 1)	oora arry adamental commente				
ne					
verific that ve	baya sammlatad all a	aatiana ahaaka	ماطمعالمهم المام	haves and that the	forms in
omplete.	ou have completed all s	ections, checke	eu an applicable	boxes, and that the	ionii is
ırvevor's Signature	gilisa gould		_Date of Survey:	10 30 07	
ii voyoi a oigilatule.	gilloa godia			10.00.01	
Organization:	SES, Inc.		Position	field team leader	
Organization.	S⊑S, IIIC.		~ 0510011.	neiu teatti leadel	

Field Data Sheets for Recreational Use Stream Surveys Data Sheet C - Field Survey Results

																		Disso	lved Ox	ygen		
	Waterbo	ody ID:	924			Site #:	7									Date:	10.30.07	,		Time:	10:20	
	Estimate	ed Chann	nel Incisio	on:	3.0	(m) (hei	ght betw	een low b	ank wid	th and wa	ater)					Di	ssolved (Oxygen:	•	12.2	(mg/L)	
	GPS Lo	cation - I	Easting (U	UTM X)	, Northin	ng (UTM	Y), Hor	izontal Ac	curacy I	Estimate	(EPE / P	DOP / FO	OM)					,,			()	
	01 UTM X: 0415669 UTM Y: 4291455 +/- 4.8 (meters) 11 UTM X: 0415903 UTM Y: 4291503 +/- 4.5 (meters)												Di	ssolved (Oxygen:			(% sat)	% sat)			
	11 UTM X: 0415903 UTM Y: 4291503 +/- 4.5 (meters)																					
	Average Stream Width: 9 (meters) Length of Survey Segment: 180 (meters)										(meters)		Specifi	c Cond:			(μS/cm)					
	(To dete	rmne Le	ngth of R	Reach)					(2	20x avera	ge strear	n width)				Wa	ter Temp	erature:		19.1	(°C)	
	Fiel	d Staff:			Gilisa G	ould and	l Larissa	Brown														
	Transect Cross-Section																					
	01 02 03 04 05 06 07								08	08 09			10	0	11							
Station	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.6	0.01	0.9	0.05	0.4	0.05	0.9	0.05	1.0	0.05	1.0	0.05	1.0	0.05	0.9	0.05	0.9	0.05	0.7	0.05	0.7	0.10
2	1.2	0.10	1.8	0.45	0.8	0.20	1.8	0.25	2.0	0.10	2.0	0.35	2.0	0.20	1.8	0.25	1.8	0.30	1.4	0.20	1.4	0.20
3	1.8	0.05	2.7	0.70	1.2	0.30	2.7	0.40	3.0	0.40	3.0	0.45	3.0	0.40	2.7	0.15	2.7	0.60	2.1	0.30	2.1	0.05
4	2.4	0.00	3.6	1.00	1.6	0.40	3.6	0.40	4.0	0.65	4.0	0.60	4.0	0.65	3.6	0.20	3.6	0.80	2.8	0.50	2.8	0.25
5	3.0	0.05	4.5	1.00	2.0	0.30	4.5	0.20	5.0	0.40	5.0	0.60	5.0	0.90	4.5	0.65	4.5	0.50	3.5	0.75	3.5	0.30
6	3.6	0.05	5.4	0.95	2.4	0.25	5.4	0.10	6.0	0.60	6.0	0.50	6.0	0.45	5.4	0.90	5.4	0.35	4.2	0.60	4.2	0.40
7	4.2	0.10	6.3	0.90	2.8	0.15	6.3	0.00	7.0	0.50	7.0	0.65	7.0	0.25	6.3	1.00	6.3	0.20	4.9	0.40	4.9	0.25
8	4.8	0.01	7.2	0.60	3.2	0.10	7.2	0.05	8.0	0.45	8.0	0.45	8.0	0.40	7.2	1.00	7.2	0.25	5.6	0.25	5.6	0.05
9	5.4	0.00	8.1	0.30	3.6	0.05	8.1	0.05	9.0	0.15	9.0	0.05	9.0	0.10	8.1	0.25	8.1	0.10	6.3	0.05	6.3	0.05
Right Bank	6.0	0.00	9.0	0.00	4.0	0.00	9.0	0.00	10.0	0.00	10.0	0.00	10.0	0.00	9.0	0.00	9.0	0.00	7.0	0.00	7.0	0.00
Feature Type		ra -		-1		1		1		1		1		1				-1			-1	
riffle, run, or pool	run, or pool riffle pool		riffle pool pool			100	p	ool	po	ool	pc	ool	p	ool	poo)]	po	01	po	01	po	01

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: gilisa gould Date: 11.07.07	gilisa gould Date: 11.07.07
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WBID#	924
Site #	8

Data Sheet B-Site Characterization

,									
Date & Time:	10.29.07 1	7:20	Site Location Description (e.g. road crossing):						
Personnel:	Gilisa Gould and Larise	sa Brown	CR 1021						
Current Weatl	her Conditions: clear		Facility Nar	ne:	Powell Gardens WWTF				
Weather cond	litions for the past 10 da	ys:2.17 inches	Permit Nun	nber:	MO0123501				
Drought cond	itions?: No drought ☑ ;	Phase I □ ; Phase	. II □ ; Phas	e III □ ; Pł	nase IV □ ; Ur	nknown 🗆			
Site Location	••								
	dinates (Universal Tran	sverse Mercator P	rojection, In	Meters					
Site 01	Easting (UTM X):	Northing (UTN	М <u>Y):</u>		Horizontal Ac	curacy:	Meters		
	0418443		4292747				7.6		
Site 11	Easting (UTM X):	Northing (UTN	M Y):		Horizontal Ac	curacy:	Meters		
	0418152	4292802			<u> </u>	8.2			
0410132 4232002 0.2									
Photos:	1				 	1			
Photo ID#	Photo Purpose	Photo ID#:	Photo F	urpose	Photo ID#:	Photo Pu	rpose		
185	downstream, T	T1 186	upstream,	T1	187	canoe on bank			
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose		Photo ID#	Photo Pu	rpose		
188	downstream, T	11 189	upstream, T11						
Photo ID#	Photo Purpose	Photo ID#	Photo F	to Purpose Photo ID#		Photo Purpose			
Uses Observ	ed:								
☐ Swimming	☐ Skin diving	□ SCUBA di	iving	☐ Tubing	9	☐ Water Skiin	g		
☐ Wind surfi	ng □ Kayaking	☐ Boating		□ Wadin	ng	□ Rafting			
☐ Hunting	☐ Trapping	☐ Fishing		☑ None	of the above	☐ Other:			
Describe:									

WBID#	924
Site #	8

Data Sheet B- Site Characterization (Continued)

Commence Condition				
Surrounding Conditi			T=	·- ·- ·-
☐ City/County parks	□ playgrounds	☐ MDC conservation lands		☑ Rural Residential
☐ Campgrounds	☐ State parks	☐ National Forests	☐ Nature trails	☐ Stairs/walkways
☐ Boating accesses	☐ Fence	☐ No tresspass sign	☐ Steep Slopes	☐ Other:
Comments:				
none				
Evidence of Human	Use:			
☐ Roads	☐ Foot path/prints	☐ Dock/platform	☐ Camping Sites	☐ Rope swings
☐ RV/ATV Tracks	☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Livestock watering
comments/other:	<u> </u>	-	<u>. </u>	
canoe on s	side of bank, near ac	cess point		
	•	•		
Substrate:				
	% Gravel	% Sand % Silt	% Mud/0	Clav % Bedrock
Substrate: % Cobble	% Gravel	% Sand % Silt	% Mud/0 60	
	% Gravel 40	% Sand % Silt	% Mud/0 60	
% Cobble		% Sand % Silt		
		% Sand % Silt		
% Cobble Aquatic Vegatation:		% Sand % Silt		
% Cobble		% Sand % Silt		
% Cobble Aquatic Vegatation:		% Sand % Silt		
% Cobble Aquatic Vegatation:		% Sand % Silt		
% Cobble Aquatic Vegatation: none	40	% Sand % Silt		
% Cobble Aquatic Vegatation: none Water Characteristic	40 s:		60	
% Cobble Aquatic Vegatation: none Water Characteristic Odor:	40 s: □ Sewage	☐ Musky ☐ Cher	60 nical ☑ I	None ☐ Other:
% Cobble Aquatic Vegatation: none Water Characteristic	40 s:		60 nical ☑ I	None ☐ Other: Milky ☑ Other:
% Cobble Aquatic Vegatation: none Water Characteristic Odor: Color:	s: Sewage Clear	☐ Musky ☐ Cher ☐ Green ☐ Gray	60 nical ☑ I	None ☐ Other: Milky ☑ Other: brown
% Cobble Aquatic Vegatation: none Water Characteristic Odor:	40 s: □ Sewage	☐ Musky ☐ Cher ☐ Green ☐ Gray	nical ☑ t sediments □ t	None ☐ Other: Milky ☑ Other:

WBID#	924
Site #	8

Data Sheet B - Site Characterization (continued)

Additional Stream M	lorphology: (Record isolate	ed pools or other featu	res identified during	the survey that may suppo	ort recreational uses)
Channel Feature	Distance from	Width (m)	Length (m)	Median Denth (m)	May Denth (m)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)
0					
Comments: (Please re	cord any additional comments	here.)			
Please verify that yo complete.	ou have completed all s	ections, checke	ed all applicable	boxes, and that the	form is
Surveyor's Signature:	gilisa gould		_Date of Survey:	10.29.07	

Field Data Sheets for Recreational Use Stream Surveys Data Sheet C - Field Survey Results

																		Disso	lved Ox	xygen		
	Waterb	ody ID:	924			Site #:	8									Date:	10.29.07	1		Time:	17:20	
	Estima	ted Chan	nel Incisi	on:	5.0	(m) (hei	ight betw	een low b	ank wid	th and wa	ater)					Di	ssolved	Oxvgen:		12.4	(mg/L)	
	GPS Lo	ocation -	Easting (UTM X)	, Northin	ng (UTM	Y), Hor	izontal Ac	curacy I	Estimate	(EPE / P	DOP / FO	OM)									
		UTM X		0418443	3		UTM Y:		429274		•	+/-	7.6	(meters)	•	Di	ssolved	Oxygen:			(% sat)	
	111	UTM X	:	0418152	2		UTM Y:		429280	2	•	+/-	8.2	(meters)	•		Specifi	c Cond			(uS/cm)	
	Averag	e Stream	Width:				15	(meters)	L	ength of	Survey S	Segment:		300	(meters)		Specifi	e cona.			(μο/οπ)	
		ermne Le								20x avera	ge strear	n width)				Wa	ter Temp	erature:		10.9	(°C)	
	Fie	eld Staff:			Gilisa G	ould and	l Larissa	Brown						_								
										Tra	nsect C	ross-Se	ction									
		01	0)2	0)3		04	()5	0)6		07	08	3	0	9	1	0	1	1
Station	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1 1.5	0.25	1.5	0.05	1.5	0.05	1.3	0.01	1.5	0.05	1.6	0.05	1.6	0.30	1.5	0.10	1.5	0.05	1.5	0.10	1.5	0.20
	2 3.0						2.6						3.2		3.0		3.0		3.0		3.0	0.40
	3 4.5												4.8								4.5	0.40
	4 6.0												6.4						6.0		6.0	0.2:
	5 7.5																				7.5	0.1:
	6 9.0	0.55			9.0	1.00	7.8	0.70	9.0	1.00	9.6			0.90	9.0							0.20
	7 10.5															0.80					10.5	0.2:
	8 12.0												12.8		12.0	1.00					12.0	0.1:
	9 13.5										14.4					0.60					13.5	0.0
Right Banl		0.00	15.0	0.00	15.0	0.00	13.0	0.00	15.0	0.00	16.0	0.00	16.0	0.00	15.0	0.00	15.0	0.00	15.0	0.00	15.0	0.00
eature Type																						
iffle, run, or po	ol p	ool	po	ool	pc	ool	р	ool	ро	ool	po	ool	p	ool	po	ol	pc	ol	pc	ool	po	ol

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: gilisa gould Date: 11.06.07	Signed:	gilisa gould	Date:	11.06.07
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Site#1 Photo ID# 146, Downstream, T1



Site# 1 Photo ID# 149, Downstream, T 11



Site# 1 Photo ID# 147, Upstream, T1



Site# 1 Photo ID# 148, Upstream, T 11



Site# 2 Photo ID# 151, Downstream, T1



Site# 2 Photo ID# 153, Downstream, T 11



Site# 2 Photo ID# 152, Upstream, T1



Site# 2 Photo ID# 154, Upstream, T 11



Site# 3 Photo ID# 155, Downstream, T1



Site# 3 Photo ID# 157, Downstream, T 11



Site# 3 Photo ID# 156, Upstream, T1



Site# 3 Photo ID# 158, Upstream, T 11



Site# 4 Photo ID# 173, Downstream, T1



Site# 4 Photo ID# 175, Downstream, T 11



Site# 4 Photo ID# 174, Upstream, T1



Site# 4 Photo ID# 176, Upstream, T 11



Site# 5 Photo ID# 177, Downstream, T1



Site# 5 Photo ID# 179, Downstream, T 11



Site# 5 Photo ID# 178, Upstream, T1



Site# 5 Photo ID# 180, Upstream, T 11



Site# 6 Photo ID# 181, Downstream, T1



Site# 6 Photo ID# 183, Downstream, T 11



Site# 6 Photo ID# 182, Upstream, T1



Site# 6 Photo ID# 184, Upstream, T 11



Site# 7 Photo ID# 194, Downstream, T1



Site# 7 Photo ID# 196, Downstream, T 11



Site# 7 Photo ID# 195, Upstream, T1



Site# 7 Photo ID# 197, Upstream, T 11



Site# 8 Photo ID# 185, Downstream, T1



Site# 8 Photo ID# 187, Canoe on bank



Site# 8 Photo ID# 186, Upstream, T1



Site# 8 Photo ID# 189, Upstream, T 11



Site# 8 Photo ID# 188, Downstream, T11